California Department of Pesticide Regulation

About DPR's Proposed Decision to Register Methyl Iodide

Revised May 2010

DPR's proposed decision to register methyl iodide follows an unprecedented level of evaluation by the department to ensure methyl iodide could be used safely in California.

On April 30, 2010, the Department of Pesticide Regulation (DPR) announced its proposed decision to register five pesticide products containing the fumigant methyl iodide. DPR's decision follows several years of assessment and an unprecedented level of evaluation by the department to ensure methyl iodide can be used safely in California. After considering California's unique cropping and population patterns, DPR has proposed a series of restrictions on methyl iodide more health-protective than those imposed anywhere in the United States.

DPR posts on its Web site (www.cdpr.ca.gov) for public comment all proposed decisions to approve or deny applications for registration. Comments on this proposed decision are due June 29, 2010, to the Pesticide Registration Branch, Department of Pesticide Regulation, P.O. Box 4015, Sacramento CA 95812, or by e-mail to mei_comments@cdpr.ca.gov. *(DPR extended the comment period from June 14 to June 29, 2010.)*

What is methyl iodide?

Methyl iodide, also called iodomethane, is used in agriculture as a fumigant. Injected into soil before crops are planted, the fumigant spreads through the soil to kill insects, weed seeds, plant diseases and nematodes. It can be applied by drip irrigation under a special protective tarp or injected into the soil using a tractor that automatically places a tarp over the ground after application.

Methyl iodide products are made by Arysta LifeScience Corp. and sold under the brand name, Midas.

What is "registration" of methyl iodide?

Pesticides must be registered—that is, licensed for sale and use—with the U.S. Environmental Protection Agency (U.S. EPA) before they can be registered in California. DPR's pre-registration evaluation is in addition to and complements U.S. EPA's. Before a pesticide can be sold or used, both agencies require data on a product's toxicology and chemistry; how it behaves in the environment; its

effectiveness against targeted pests and the hazards it poses to non-target organisms; its effects on fish and wildlife; and the degree of worker exposure.

DPR gives specific attention to evaluating pesticide use under California's unique climate and geography, and may require more or different studies than U.S. EPA requires. California is home to the nation's greatest concentration of fruit, vegetable and nut crops. Tens of thousands of men and women work these fields, and their protection is one of our primary concerns.

DPR must also evaluate the potential impact of pesticide use at the agricultural-urban boundary. DPR, for example, has traditionally placed more emphasis than U.S. EPA on evaluating the potential for off-site movement of pesticides, and on taking steps to prevent it.

What did DPR's methyl iodide evaluation involve?

For methyl iodide, DPR's scientists reviewed more than 175 studies on possible health and environmental effects. DPR paid particular attention to potential exposures of people who live, work or spend time in areas close to fields where methyl iodide might be used. DPR estimated potential exposure of bystanders using a computer model that calculates air concentrations to which people could be exposed at various distances around treated fields.

This information helped regulators determine if and how exposures to methyl iodide could be kept below unsafe levels. To register a pesticide, DPR must ensure it can be used safely. In developing effective measures to avoid potentially unsafe pesticide exposures, DPR considered a wide range of scientific input and followed protocols of both U.S. EPA and the World Health Organization.

DPR took a more health-protective stance than U. S. EPA. California's allowable exposure of 96 parts per billion (ppb) for licensed professionals who apply or handle methyl iodide will be half of what U.S.EPA allows (193 ppb). For others (those not handling or using methyl iodide), DPR will not allow exposures above 32 parts per billion averaged over 24 hours. This is five times lower (that is, more stringent) than the U.S. EPA level of 150 ppb.

Meeting these lower exposure standards means that DPR will impose much stricter controls on methyl iodide use than other states.

How can methyl iodide affect human health??

Because they are intended to control a wide range of pests, fumigants are highly toxic. Many toxic effects of methyl iodide are the same as those of iodide, a form of the chemical element iodine. This is because methyl iodide forms iodide when it is broken down in the body. The human body needs the right amount

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of iodine for good health. However, too much iodine can also be harmful. Breathing high levels of methyl iodide can cause too much iodide to form in the body. This can lead disrupt thyroid hormones, which can potentially affect pregnancy and cause other health problems.

Some animals that inhaled high amounts of methyl iodide over many months developed thyroid cancer. However, this happened only when animals breathed methyl iodide at levels and for durations much higher than professional applicators would likely breathe when they work with methyl iodide.

Inhaling very high amounts of iodomethane may also affect the central nervous system. Breathing methyl iodide at lower levels can irritate the respiratory tract and lungs. Prolonged contact with the skin may cause severe irritation and splashes into the eye may cause permanent eye damage.

To avoid such effects, applicators are trained and required to wear protective equipment, like long-sleeved pants and shirts, and face shields. People outside the application area, where the levels in air are much lower, should not be affected.

In short, DPR has concluded that people will not be exposed to harmful levels when methyl iodide products are used according to the strict controls DPR is proposing.

What protective measures will DPR require before methyl iodide can be used?

DPR will add methyl iodide to California's list of restricted materials.

And the manufacturer must add more restrictions, besides those on the current U.S. EPA-approved product labels, to new California-specific product labels. (*See next page.)*

What is a California-restricted material?

In California and other states, users of federally restricted use pesticides must have certain training. Only California has its own list of restricted pesticides and requires users of these pesticides to get a site-specific permit from a local regulatory official before it can be applied.

County agricultural commissioners are uniquely positioned to do this, with their extensive knowledge of agricultural practices, pesticides and local conditions. The commissioner may deny the permit based on local conditions or impose restrictions beyond those on the pesticide label.

Commissioners tailor these extra controls based on their knowledge of the area and local conditions, such as weather or nearby sensitive sites, including residential areas, playgrounds, schools, day care centers, and hospitals.

If risks cannot be reduced to avoid unsafe exposures, DPR will not allow the pesticide to be used.

California's Proposed Methyl Iodide Use Restrictions Will Be Much Stricter

Before methyl iodide could be registered, DPR will require the registrant to obtain U.S. EPA approval on California-specific product labels. This must be done through U.S. EPA because the federal agency has sole authority over pesticide labels. These are the major differences between how methyl iodide is used elsewhere and how it would be used in California with the extra restrictions imposed by DPR:

- **Lower allowable exposure levels:** 96 parts per billion (ppb) for licensed professionals applying or handling methyl iodide *(half of what U.S.EPA allows)*. For others (those not using methyl iodide), DPR will not allow exposures above 32 parts per billion averaged over 24 hours. *This is five times lower than the U.S. EPA level.*
- **California-restricted material, requiring a permit:** Methyl iodide will be made a California restricted material. Like U.S. EPA, applicators must be certified or under the direct supervision of a certified person. DPR also requires a site-specific permit from the county agricultural commissioner, who can impose extra use restrictions tailored to the application site. *U.S. EPA requires no permit.*
- **Larger buffer zones** of 100 to 2,500 feet around all applications, depending on application method and rate, and treated acreage. *U.S. EPA's buffer zones are smaller, ranging from 25 to 500 feet.* (A buffer zone is an area surrounding a pesticide application in which certain activities are restricted for a specified period to protect human health and safety. Pesticides are not applied in the buffer zone.)
- **Bigger minimum buffer zone around** *schools, hospitals,* nursing homes, day care centers, and similar sites, a buffer zone of one-half mile. *U.S. EPA's buffer zone around these types of sites is smaller at one-quarter mile*
- **Prohibit standard tarps**, only virtually impermeable film (VIF) tarps allowed. This material contains a gas-impermeable layer designed to suppress the movement of fumigants into the air. *U.S. EPA allows both standard and VIF tarps.*
- **Fewer acres can be treated at once:** A maximum of 20 to 30 acres, depending on the method. *U.S. EPA acreage limit is higher, 40 acres regardless of application method.*
- **Prohibit night applications**, which typically result in higher levels of fumigant in the still night air. *U.S. EPA has no limits on time of application.*
- **Reduced application rates** of 75 to 125 pounds an acre, depending on application method and crop. *U.S. EPA's maximum rate is higher, 175 pounds an acre.*
- **Stricter groundwater restrictions** such as buffer zones around wellheads and application limits in vulnerable areas. *U.S. EPA's ground water protections are more limited.*
- **Extended time before workers can re-enter fields,** 14 days. *U.S. EPA's reentry intervals range from 5 to 10 days.*

If methyl iodide is registered, what crops could it be used on? How much would be used?

Methyl iodide products would be registered in California for use to treat soil before planting of a limited number of crops, including strawberries, tomatoes, stone fruits, tree nuts, vines, nurseries, peppers, turf and field-grown ornamentals.

In other states where methyl iodide is registered, use is generally where high-value crops like strawberries and fresh-market tomatoes are to be planted. Methyl iodide products are more costly than fumigants such as metam-sodium and chloropicrin.

U.S. EPA considers methyl iodide a feasible alternative to methyl bromide. Under international treaty, the only remaining methyl bromide uses in the U.S. are those allowed under a "critical use exemption." U.S. EPA can grant exemptions only for uses that do not have "technically and economically feasible alternatives."

Registration of methyl iodide in California will likely result in U.S. EPA approving fewer critical use exemptions for California crops. This occurred in Florida after its registration of methyl iodide, and growers turned to alternative fumigants.

Does methyl iodide get into food?

No. Because methyl iodide can damage plants, the fumigant is applied to bare soil and allowed to degrade to very low levels safe for crop growth before crops are planted. According to U.S. EPA, "studies in plants assure that there is no reasonable expectation of … residues in or on food."

Is methyl iodide likely to contaminate drinking water?

No. U.S. EPA and DPR have independently assessed the potential for contamination of ground and surface water. Using computer modeling and assuming worst-case environmental conditions, the conclusion was that methyl iodide is unlikely to affect water quality. To provide an extra margin of safety, DPR will impose additional controls to protect ground water.

Was the registration process different for methyl iodide?

After DPR received the application package for methyl iodide, we decided to conduct an especially comprehensive, credible and transparent evaluation. For example, while applications to register new pesticides always go though a thorough health and safety evaluation, DPR usually does not conduct a risk assessment before registration. Methyl iodide was an exception.

Another difference is the extra detail in the notice of proposed decision itself. DPR also lengthened the public comment period for this proposed decision from the 30 days required by regulation to 45 days.

Before methyl iodide can be registered, the manufacturer must get U.S. EPA approval of California-specific labels detailing special protective measures for the state.

Also, DPR's draft risk assessments are typically peer-reviewed by scientists at U.S. EPA and Cal/EPA's Office of Environmental Health Hazard Assessment. For methyl iodide, we added an extra layer of peer review by an outside panel of scientists. We asked them to hold open meetings where the public could speak, and posted our draft risk assessment online to invite more public comment.

When did U.S. EPA register methyl iodide?

The U.S. EPA registered methyl iodide in 2007 after "one of the most thorough risk assessment processes ever completed by the Agency." Methyl iodide can now be used in 47 other states.

In 2009, U.S. EPA presented its Stratospheric Ozone Protection Award to Arysta LifeScience for development and commercialization of methyl iodide, which U.S. EPA estimated could replace "some 85 percent of the current soil fumigation use of methyl bromide." Methyl bromide is a fumigant that damages the ozone layer.

How will DPR's protective measures be enforced?

Pesticide labels are legally binding documents. "The label is the law" and use of a product in a way not allowed by the label is illegal. County agricultural commissioners enforce pesticide laws locally, under DPR oversight. People who use pesticides illegally can lose their permits to apply restricted pesticides and are subject to other penalties, including fines and criminal prosecution.

What are the next steps? When will DPR make its final decision?

After U.S. EPA approves the California-specific product labels, DPR technical experts will then review them to ensure all required health-protective measures are in place.

DPR will also evaluate public comments received on the proposed registration before deciding whether to proceed. If DPR makes its decision final, the Department must first adopt regulations making methyl iodide a restricted material.

These steps could take several months.

Comments on this proposed registration decision are due June 29, 2010. For more information, go to www.cdpr.ca.gov and click on "Decisions Pending" on the right side of the page.

Department of Pesticide Regulation
1001 I Street
P.O. Box 4015
Sacramento, CA 95812

www.cdpr.ca.gov
916.445.4300

About the Department of Pesticide Regulation

The California Department of Pesticide Regulation (DPR) protects human health and the environment by regulating pesticide sales and use and by fostering reduced-risk pest management. DPR's strict oversight includes product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the County Agricultural Commissioners. DPR is one of five boards and departments within the California Environmental Protection Agency.